

- 2. Costal prehumeral white spot absent, or rarely present on one wing; first mid-tarsal segment unspckled or with few spots.....
A. cristatus, sp. n.
 Costal prehumeral white spot present; first mid-tarsal segment usually well speckled.....*A. leucosphyrus riparis*, var. n.
- 3. Female palpi as long or nearly as long as proboscis; well-marked palpal and tarsal banding on type form (tarsal banding reduced on Luzon specimens).....*A. leucosphyrus*
 Female palpi much shorter than proboscis; narrow palpal and tarsal bands. (The published descriptions of this variety are incomplete)
A. leucosphyrus var. *hackeri*

Larvae.

- 1. Large, strongly branched postclypeal hairs, reaching well beyond front of clypeus; anterior clypeal hairs rather strongly branched or frayed; palmate hair of second abdominal segment well developed; thoracic palmate hair partially developed; basal tubercles of shoulder hairs not fused; teeth of pecten mostly subequal in length.....*A. cristatus*
 Postclypeal hairs either much shorter or unbranched; anterior clypeal hairs simple or weakly frayed; thoracic palmate hair not developed; basal tubercles of shoulder hairs frequently or usually fused..... 2
- 2. Palmate hairs of second abdominal segment developed; postclypeal and outer clypeal hairs more than half as long as inner; all clypeal hairs simple.....*A. leucosphyrus* var. *hackeri*
 Palmate hairs of second abdominal segment rudimentary; postclypeal and outer clypeal hairs short, usually simple, sometimes forked, or postclypeal with several slender branches; inner clypeal hairs sparsely frayed; pecten with a few long teeth, the others distinctly shorter.....*A. leucosphyrus* and *A. leucosphyrus* var. *riparis*

THE APHID GENUS EPAMEIBAPHIS IN UTAH.¹

By G. F. KNOWLTON AND C. F. SMITH.²

The genus *Epameibaphis* Oestlund may be characterized as: Vertex nearly flat; secondary sensoria circular; cornicles cylindrical with conspicuous knob-shaped apex; wing venation as in the genus *Aphis*; hairs long, many of them blunt, enlarged, or flattened at tip. Genotype *Aphis frigidae* Oest. *Oestlund, 19th Rpt. State Ent. Minn., pp. 132-133. 1922.*

KEY TO SPECIES.

- A. Cornicles black.....*atricornis*
- A.A. Cornicles pale.....B.
- B. Sensoria present upon antennal III in aptera (Fig. 1-J).....*frigidae*
- B.B. Sensoria absent from antennal III in aptera (Fig. 1-F) *utahensis* n. sp.

***Epameibaphis frigidae* (Oestlund).**

Oestlund, Geol. Surv. Minn., 14th Rept. 46, 1886. Aphis.

Material previously recorded as this species (Canad. Ent. 67 : 193, 1935) has proved to be *E. utahensis*. Material collected at Pingree Park, Colorado, August 21, 1935, and at Kremling, Colorado, August 24, 1935 (Knowlton), and identified by Prof. M. A. Palmer, proved to be quite different from the Utah material. The following notes are taken from the Colorado specimens:

Apterous vivipara.—Antennal III, 0.17 to 0.24 mm. long with 1 sensorium; IV, 0.14 to 0.17; V, 0.13 to 0.17; VI, 0.09 to 0.11 + 0.28 to 0.38 mm.; hind tibiae pale, rather slender and 0.48 to 0.66 mm. long; hind tarsi 0.09 to 0.11 mm.; cornicles rather slender, pale, 0.39 to 0.47 mm.

***Epameibaphis atricornis* Gillette and Palmer.**

Gillette and Palmer, Ann. Ent. Soc. Amer. 26 : 348, 1933.

Alate vivipara.—Size 1.2 to 1.41 mm. long; ocular tubercles rudimentary or lacking; antennae 1.46 to 1.56 mm. long, black beyond basal fifth of III; antennal III, 0.23 to 0.31; IV, 0.24 to 0.26; V, 0.23 to 0.27; VI, 0.11 to 0.14 plus 0.45 to 0.52 mm. long; antennal III with 4 to 8 circular sensoria; rostrum tip acute, beyond hairs needlelike; hairs upon vertex blunt to slightly enlarged at tip; wing veins dusky; abdomen with dusky lateral and dorsal areas; cornicles cylindrical, black, 0.26 to 0.37 mm. long; cauda dusky, somewhat tapered, apex rounded.

Apterous vivipara.—Body frosted brown to greenish and armed with long, blunt hairs; antennae 1.25 to 1.48 mm. long, dusky beyond, or including apex of III; antennal III, 0.21 to 0.26; IV, 0.21 to 0.24; V, 0.21 to 0.24; VI, 0.11 plus 0.39 to 0.52 (one specimen 0.14 plus 0.52) mm.; secondary sensoria lacking; legs black; hind tibiae, 0.73 to 0.81 mm.; hind tarsi, 0.13 to 0.15 mm.; cornicles cylindrical, black, very characteristically knobbed at tip, and 0.34 to 0.44 mm. long.

Localities from which alate and apterous forms of this species were collected are: Cedar Creek, June 9, 1930; Cedar Valley, June 13, 1935; Maple Canyon, June 7, 1935; Mill Creek Canyon, June 28, 1925; Rattlesnake Pass, May 19, 1930, on *Artemisia tridentata*. Apterous forms only were collected at: Ash Creek, Washington County, April 25, 1935; Brigham, June 17, July 19, and September 27, 1927; Cache Junction, May 17, 1927; Circleville Canyon, June 19, 1935; Curlew Valley, June 9, 1930; Dewey, April 28 and July 19, 1927; Glendale, June 18, 1935; Hardup, June 9, 1930; Honeyville, April 28, May 17, July 19, and September 3, 1927; 12 miles southeast Hurricane, July 11, 1925; Kosmo June 9, 1930; Parley's Canyon, August 16, 1935; and Snowville, April 30, 1930, Utah, on *Artemisia* sp., usually *tridentata*.

¹ Contribution from the Department of Entomology, Utah Agricultural Experiment Station.

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***Epameibaphis utahensis*, n. sp.**

Apterous vivipara.—Color whitish to gray over a grayish-green body; body 0.9 to 1.23 mm. long; width through eyes 0.37 to 0.41; antennae 0.98 to 1.1 mm. long and dusky beyond middle of V; antennal III, 0.2 to 0.23 mm. long and without sensoria; IV, 0.16 to 0.23; V, 0.16 to 0.23; VI, 0.9 to 0.12 + 0.28 to 0.41 mm. long; rostral IV + V, 0.14 to 0.16 mm.; cornicles pale to slightly dusky toward apex, 0.32 to 0.41 mm. long; cauda, 0.1 to 0.123; hind tibiae pale, 0.59 to 0.72 mm.; hind tarsi, 0.11 to 0.12 mm. long.

Alate vivipara.—Body 0.92 to 1.2 mm. long; width across the eyes 0.37; antennae 1.16 to 1.19 mm.; antennal III, 0.22 to 0.25 with 5 to 6 sensoria; IV, 0.2; V, 0.2; VI, 0.1 to 0.12 + 0.41 to 0.43 mm.; rostral IV + V, 0.13; cornicles pale, knobbed at apex, 0.29 mm.; cauda pale, 0.9; hind tibiae pale, 0.61 to 0.64; hind tarsi, 0.12 mm.

Apterous ovipara.—Measurements in general as in apterous vivipara; cauda 0.14 to 0.164 mm. long; hind tibiae (Fig. 1-B) swollen over proximal half and studded with 25 to 35 sensoria.

Collected upon *Artemisia*, the usual species being *tridentata*. Alate and apterous specimens were collected at Hardup, Curlew Valley, and Cedar Creek, Utah, June 9, 1930 (Knowlton). Apterous were taken at Blue Creek, June 7, 1930; Cedar Spring, April 30, 1930; Curlew Valley, April 21, 1930; foothills of Hansel's Mountains, June 9, 1930; Newton, June 6, 1930; Promontory, April 21, 1930; Rattlesnake Pass in Boxelder County, May 17, 1928; Snowville, April 21 and 30, 1930 (Knowlton); and Leeds, April 25, 1935 (Knowlton-Smith), in Utah. Specimens collected at LeRoy and Lyman, Wyoming, August 4, 1932 (Knowlton) corresponded with Utah material, except that the measurements of the various parts were shorter. Ovipara, Blue Creek, Utah, October 12, 1932 (Knowlton).

Taxonomy.—*Epameibaphis utahensis* differs from *E. atricornis* G. and P. in having pale (instead of black) cornicles and hind tibiae, and from *E. frigidae* (Oest.) in having antennae as long or longer than the body, shorter and thicker cornicles, and in lacking sensoria on antennal III in aptera.

Type and paratype slides in senior writer's collection; paratypes in the U. S. National Museum and in junior writer's collection.

SUPPLEMENT.

The senior writer is indebted to Professor M. A. Palmer for calling his attention to the fact that *Cinara chamberlini* Knowlton (Pan-Pacific Ent. 11 : 140, 1935) appears to be a synonym of *C. ferrisi* (Swain). A study of material from Moscow, Idaho, and from Oregon (identified by Dr. Essig), which she kindly sent to the writer, and of type slides loaned by Dr. E. O. Essig, revealed no satisfactory differences for separating the two species.

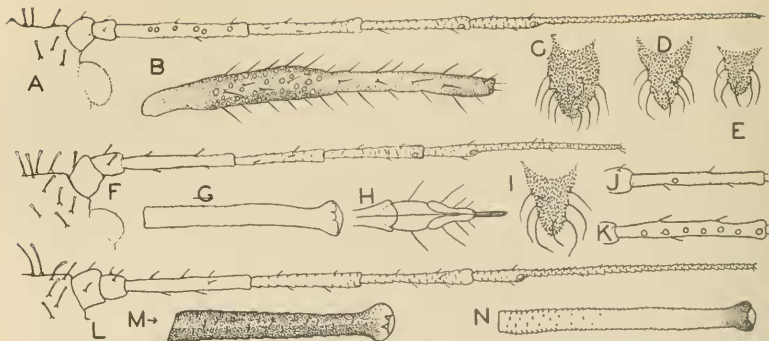


FIG. 1. *Epameibaphis utahensis* n. sp.: Alate vivipara, A and E. Apterous vivipara, D and F to H; apterous ovipara, B and C.

E. atricornis: Alate vivipara, K; apterous vivipara, L and M.

E. frigidiae: Apterous vivipara, J and N.

THE MATURE LARVA AND PUPARIUM OF BRACHYCOMA SARCOPHAGINA (TOWNSEND) (DIPTERA : METOPIIDAE)

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In the older works on Diptera this species has always been placed in the family Tachinidae. Curran (2) in 1934 took the Sarcophagidae, part of the Muscidae and part of the Tachinidae of Williston's Manual and placed them in the family Metopiidae. The genus *Brachycoma* fell within the limits of the removed Tachinidae and was thus placed in the Metopiidae. According to Curran the larvae of the latter family in so far as known are flesh feeders, parasites or scavengers on excrement.

In 1891 Townsend (13) described *Brachycoma sarcophagina* from Carlinville, Illinois. At that time he placed the species in the genus *Laccoprosopa* which was described as new, the above species being made the type.

Coquillett compared a type specimen of *Laccoprosopa sarcophagina* with a specimen of *Brachycoma devia* (the type species of the latter genus) received from and identified by Brauer and Bergenstamm. He reported in 1897 (1) that this comparison failed to disclose any difference of generic importance and thus made *Laccoprosopa* a synonym of *Brachycoma*. In his host list (l. c.) Coquillett records *Brachycoma davidsoni* Coq. having been bred from the larvae of *Bombus fervidus* Fabr. in California. He records *B. sarcophagina* from New Jersey in addition to southern Illinois.